

**NEGATIVE DECLARATION**

**Submitting:** ☐ Draft  
☒ Final  
☐ Mitigated Negative Declaration

**Project Title:** Action Memorandum/Remedial Action Plan (AM/RAP) for a Non-Time Critical Removal Action at Installation Restoration (IR) Site 7, Station Landfill, Naval Weapons Station (NAVWPNSTA) Seal Beach, California

---

**State Clearinghouse Number:** 2003111114

---

**Contact Person:** Pei-Fen Tamashiro  
Naval Weapons Station Seal Beach

---

**Phone #** (562) 626-7897

---

**Project Location (Include County):**

NAVWPNSTA Seal Beach is located at 800 Seal Beach Boulevard, Seal Beach, Orange County, California, and consists of approximately 5,000 acres of land along the Pacific Ocean within the City of Seal Beach. NAVWPNSTA Seal Beach is bordered on the southwest by Anaheim Bay, on the north by Interstate Highway 405 (San Diego Freeway), on the east by Bolsa Chica Road, on the west by Seal Beach Boulevard, and on the southeast by an Orange County Flood Control Channel (OCFCC). Site 7 is located along the southern boundary of the base, adjacent to Perimeter Road and the OCFCC (Bolsa Chica) as shown in Figures 1 and 2. The Site 7 removal action was expanded to include the adjacent Site 4 areas of potential concern (AOPCs) 1A and 2A. Site 4 AOPCs 1A and 2A are a 5,400-foot by 100 foot wide unpaved shoulder adjacent to Perimeter Road and Site 7 Station Landfill and along the southern boundary of NAVWPNSTA Seal Beach as shown in Figures 1 and 3. The western portion of the Site 7 and Site 4 AOPC 1A are located within the boundaries of the Seal Beach National Wildlife Refuge (NWR).

Site 7 spans approximately 33 acres. Site 7 is bounded on the north by a railroad spur and oval laydown area, on the south by a drainage ditch and Perimeter Road. The eastern boundary is not delineated but appeared in aerial photographs (taken for previous investigations) to extend to the southern projection of the marshalling yard. The western boundary cuts north-south along the eastern shoreline of Perimeter Pond at the southeast corner of the NWR. Perimeter Road forms the southern boundary of Site 7 and also contains a portion of Site 4 AOPCs 1A and 2A. The Site 7 removal action consists of six areas and an expanded area, Site 4 AOPCs 1A and 2A adjacent to Site 7.

In 1985, the Navy conducted an assessment of the NAVWPNSTA Seal Beach area to identify sites posing a potential threat to human health or the environment and that might warrant further investigation. At that time, Sites 7 and 4 were identified as sites potentially posing threats, and a confirmation study was recommended. In 1989, a RCRA facility assessment was conducted of the NAVWPNSTA Seal Beach for the United States Environmental Protection Agency (EPA). This assessment identified solid waste management units and areas of concern. Site 7 was recommended for further investigation, and Site 4 was identified as having a high current and ongoing potential for release of hazardous waste or constituents to soil or groundwater and for the generation of subsurface gases according to the report of Kearney in 1989. In 1990, laboratory testing of soils for polychlorinated biphenyl (PCB) contamination in an agricultural out lease area where used oil had

been used for weed suppression were sampled for priority pollutants. No priority pollutants were detected at levels exceeding toxic threshold limit concentrations (TTLCS) in soils or water sampled according to the report of Southwest Division, Naval Facilities Engineering Command (SWDIV) 1990a. A subsequent remedial investigation conducted in 1990 by Roy F. Weston, Inc., included sampling locations and analytical parameters to delineate the nature and extent of contamination. The recommendations from this study were then used as the basis for a Remedial Investigation/Feasibility Study in a 1993 Work Plan. The final report, issued in 1995, included review of geophysical survey, soil gas sampling, integrated surface sampling, and ambient air sampling (including meteorological monitoring). Other field investigation activities performed at Site 7 included installation of groundwater monitoring wells and quarterly sampling for one year, aquifer testing, cone penetrometer testing, direct-push groundwater sampling, and surface and subsurface soil sampling. Following EPA guidance, data were collected to characterize routes of exposure including potential pathways migration, for example, groundwater contamination, soil vapor, and atmospheric releases.

A baseline human health risk assessment (HHRA) and a preliminary Ecological Risk Assessment (ERA) were conducted using the data collected from the field investigations. The results from the risk assessments indicated that the chemical risks generated at Site 7 to human and ecological receptors are low. However, as part of the investigations, elevated lead concentrations (2,080 milligrams per kilogram [m/kg]) were detected in soil at a depth of 1 foot below ground surface (bgs) at well location (W42) near the segment of Site 4 that is adjacent to the National Wildlife Refuge. Additional investigation was conducted in this area designated as the "lead hot spot" as part of the remedial investigation. Additional samples were collected and analyzed for chromium, lead, and zinc. Results revealed that for the 35 surface soil samples collected, 23 samples indicated lead concentrations in excess of the California-modified residential preliminary remediation goal (PRG) for lead (130 mg/kg) with a maximum concentration of 5,180 mg/kg. These samples were located in the strip of land along Perimeter Road, in the southern part of Site 7, approximately 100 by 1,400 feet long. Additional laboratory results revealed a maximum concentration of 740 mg/kg. Tetrachloroethene; benzo(a)pyrene; and 4,4'-DDT were each reported in one sample. Total petroleum hydrocarbons as diesel (TPH-d) concentrations of 40.9 and 19.8 mg/kg were reported in two samples. No chemicals of potential concern (COPCs) were identified in the groundwater samples collected from Well W42 located within the lead hot spot. The remedial investigation report concluded that the elevated lead concentrations reported in the lead hot spot were probably associated with oiling the Perimeter Road rather than Site 7 operations and that the lead hot spot would be further investigated as part of Site 4.

In 1995, six locations were recommended for further investigation as the result of a site investigation. Further testing of Perimeter Road (426) samples at depths of 6 and 24 inches bgs were analyzed for lead. Soil samples were collected every 500 feet (212 samples) were analyzed for total petroleum hydrocarbons (PHs) and semivolatile organic compounds (SVOCs). Soil samples collected every 1,000 feet (106 samples) were analyzed for polychlorinated dibenzodioxins (dioxin)/polychlorinated dibenzofurans (furans) (PCDDs/PCDFs). Analytical results indicated that 36 out of 426 samples at the 6-inch depth had lead concentrations above the residential PRG value of 130 mg/kg (residential PRG). The analytical results also indicate that 25 samples had PCDD/PCDF toxicity equivalency factor values above the preliminary remediation goal (PRG) value for tetrachlorodibenzo-p-dioxin (TCDD) of 0.0038-mg/kg. Seventeen of the samples were from a depth of 6 inches bgs, and eight samples were from a depth of 24 inches bgs. The only SVOC reported above the residential PRG was benz(a)anthracene, in one sample at the 6-inch depth, according to AccuTek in 1995.

Groundwater sampling to assess ecological risk and metals concentrations was performed at the request of the DTSC in 1995 and a supplemental groundwater monitoring study was performed in 1998 at various sites, including Site 7. The report concluded that the groundwater quality data trends at Site 7 indicated sporadic detection of few metals that exceeded their respective ambient water quality criteria and background concentrations. Further, the radionuclides were found to be naturally occurring, and cyanide was not detected in the September 1998 sampling event. Overall, natural attenuation processes (e.g., dilution due to tidal “flushing”) appears to have been active over time, and no well-defined plumes exist.

A supplemental characterization study of Perimeter Pond trenches was undertaken to characterize the existence of buried waste at Site 7. However, findings were inconclusive, and further studies were required to adequately characterize the wastes.

In 2001, a Removal Site Evaluation of several sites, including Site 4, was conducted. This evaluation assessed AOPCs 1A and 2A and included an ERA and an HRA. Based on the findings and conclusion for soil at AOPCs 1A and 2A, further evaluation is recommended for lead in soil. Based on the findings and conclusions for groundwater at AOPCs 1A and 2A, groundwater is recommended for further evaluation for confirmatory groundwater monitoring for arsenic, antimony, and hexavalent chromium according to the report of BNI, 2001.

The objectives for the removal action are listed below:

1. Reduce the potential for exposure of ecological receptors to landfill waste and potentially contaminated soil by increasing separation and/or eliminating exposure pathways (for example [e.g.], water seeps) of wastes to human and ecological receptors;
2. Restore habitat that is compatible with the Seal Beach National Wildlife Refuge habitat;
3. Minimize impact to wetlands and improve conditions of remaining wetlands, to the extent practicable;
4. Control surface water runoff and reduce the potential for erosion of the landfill surface;
5. Comply with chemical-specific Applicable or Relevant and Appropriate Requirements (ARARs) where exceedances have occurred due to waste releases;
6. Minimize further migration of lead in surface soil at adjacent Site 4 AOPCs 1A and 2A; and
7. Reduce risk to ecological receptors from lead-contaminated soil to acceptable levels at adjacent Site 4 AOPCs 1A and 2A.

These Remedial Action Objectives are designed to protect humans and habitat from contact or exposure to surface trash and debris.

A detailed description of each area follows.

Site 7 Area 1: This area lies in the northeast portion of the site. It covers approximately 8 acres. Most of the waste disposal and landfiling activities took place in Area 1 in a series of unlined trenches lying in an east-west orientation. Reportedly, the trenches were excavated to a depth of 10 feet

below ground surface (bgs) and filled with debris (Naval Energy and Environmental Support Activity [NEESA], 1985). However, exploration during a supplemental characterization indicated the bottom depth of the debris varied between 5.5 and 9 feet bgs with an average bottom depth of 6.4 feet bgs (Southwest Division, Naval Facilities Engineering Command [SWDIV], 1999c). Types of debris observed during exploratory drilling included diapers, clothing, wire, and rubber.

Chemical soil sample analyses detected low levels of VOCs, SVOCs, PCBs, pesticides, and cyanide with no consistent pattern. Metals were detected generally within background levels. Metals included copper, nickel, lead, and zinc. Sampling results revealed no significant migration of landfill gas. Sampling was conducted by Aero Vironment, Inc. in 1993. Shallow groundwater shows low levels and infrequent detections of COPCs including, VOCs, SVOCs, pesticides, metals, asbestos, and cyanide. Results of sampling did not reveal a plume of significant contamination. At Site 7, shallow groundwater was encountered between 3 and 5 feet bgs. The underlying shallow groundwater is saline to hypersaline (total dissolved solids [TDS] ranging between 24,000 and 57,000 mg per liter (L) and cannot be regarded as a potential drinking water source. A connection between the shallow groundwater and the lowered aquifer system (a deeper source of main drinking water) appears unlikely.

The lack of a verifiable groundwater plume and significant gas emissions at the Site 7 landfill suggests that natural attenuation processes have been active for the last 25 to 50 years since cessation of landfill operations. For example, the wastes were buried in clays and silty clays, which would tend to immobilize the metals, polycyclic aromatic hydrocarbons (PAHs), pesticides, and PCBs. Most VOCs are expected to have volatilized into the atmosphere or dissolved into rainwater and infiltrated to the groundwater. Over the course of 25 to 50 years, the effects of advective transport and dispersion on soluble compounds significantly would reduce their concentrations in soil and groundwater. Historic, seasonal, and tidal fluctuations of groundwater levels at Site 7 can enhance passive aerobic biodegradation because the subsurface soil matrix is alternately saturated and unsaturated. In particular, the lack of gas emissions seems to indicate that organic matter in the landfill has entered the final phases of degradation. Based on the baseline HHRA, only PCBs were detected at concentrations to qualify as a COPC from a human health standpoint. PCBs were detected at a maximum concentration of 0.435-mg/kg in soils. The HHRA estimated the lifetime cancer risk at one in one million, which is within the range of concern that can be addressed through risk management decisions. Human exposure to buried contaminants at Site 7 would only occur if there were future disturbance of the existing soil cover. Otherwise, human exposure to the landfill wastes is limited to Navy personnel, other governmental agency personnel, and occasional visits by academic institutional staff and students, and brief visits by the public.

The preliminary ERA identified DDT and its metabolites (dichlorodiphenyldichloroethane [DDD] and dichlorodiphenyldichloroethene [DDE]) as ecological COPCs in sediments. However, the DDT and its metabolites are likely to be regional contaminants dispersed by agricultural activities in the Los Angeles area, according to the report of SWDIV, 1995a. Consequently, no significant ecological risks for the landfill were identified. Site-specific PRGs were near or above the site maximum concentrations; therefore, the proposed values did not alter the preliminary conclusion of the ERA for no further action at the Site 7 as recommended by the remedial investigation. The screening aquatic ERA identified possible low risks to sessile benthic invertebrates caused by concentrations of several chemicals (silver, DDT and metabolites, and Aroclor 1254) in sediment that exceed screening risk levels. Based on the 10 locations sampled in the Perimeter Pond area, those risks would occur at 2 locations: the southeast corner of the pond and an area near the exposed debris near the center of the east shoreline. Risks from such exposure would be limited to a small area because the seep

would be diluted rapidly upon entering the pond. No adverse levels for pesticides in birds were exceeded by concentrations of the pesticides in mussel tissue, which the birds consume in large amounts as food from the area. The primary receptors that are most likely to be impacted by existing site conditions are aquatic and marine life inhabiting the water column and residing in or on the sediment located along the eastern shoreline of Pond and ecological receptors that nest nearby.

**Site 7 Area 2:** This area lies along the southern boundary of the site adjacent to Perimeter Road. It is probably a single, contiguous trench approximately 600 feet long by 40 feet wide (about 0.6 acres). The bottom depth of debris ranges from 6 to 10 feet bgs (SWDIV, 1999c) with an average bottom depth of 7.5 feet bgs. During exploratory drilling, building materials such as wood, metal, and concrete were observed.

**Site 7 Area 3:** This area lies in the northwest portion of Site 7. It is an irregularly shaped area that is approximately 1 acre. Site visits to Area 3 reveal surficial scattered rusted metal debris. This surficial metal debris accounts for the geophysical anomalies detected in this area during the presampling activities of the remedial investigation (RI) (SWDIV, 1995b).

**Site 7 Area 4:** This area lies in the northwest portion of Site 7 southeast of Area 3. It is similar to Area 3 in that it is also an irregularly shaped area, approximately 1 acre, littered with surficial rusted metal debris.

**Site 7 Area 5:** This area forms the eastern shoreline of Perimeter Pond and lies between Perimeter Pond and East Pond. Two north-south-oriented trenches lie in this area, with a portion of the western trench exposed to Perimeter Pond. Exposed debris observed includes materials such as concrete, metal banding, and lumber. Area 5 covers about 0.7-acre and has an average bottom debris depth of 7 feet (SWDIV, 1999c).

**Site 7 Area 6:** This area lies to the southeast of Area 5 and is similar to Areas 3 and 4 in that the debris found in this area appears to be surficial only. Area 6 lies along an unpaved access road between Perimeter Road and the eastern shore of Perimeter Pond. The debris, mostly pieces of lumber, appears to have fallen off vehicles during construction of Perimeter Pond. This area is irregular in shape and occupies about 0.1-acre.

**Site 4 AOPCs 1A and 2A:** Site 4 AOPCs 1A and 2A are a 5,400-foot by 100-foot-wide unpaved shoulder adjacent to both Perimeter Road and Site 7 Station Landfill, along the southern boundary of NAVWPNSTA Seal Beach. Site 4 AOPC 1A is located within the NWR, and AOPC 2A is located east of the NWR. Site 4 AOPCs 1A and 2A were identified as containing several potential locations where elevated lead concentrations from dust control activities were detected. An estimated 40,000 gallons of waste oil was applied over a 1-year period on 12 miles of the perimeter road for dust control (NEESA, 1985; SWDIV, 1990). Information from previous investigations indicates that elevated lead concentrations were detected to a depth of at least 2.5 feet (SWDIV, 1990; BNI, 2001). In the Removal Site Evaluation conducted for AOPC 1A, several metals were reported at concentrations above background levels for soil in adjacent to the road: antimony, arsenic, and hexavalent chromium. (confirm metals tested with report) Elevated PCDD/PCDF concentrations were reported; however, because those concentrations were within the National Wildlife Refuge and NAVWPNSTA explosive arc, and were in close proximity to the landfill, a human health risk assessment was not performed. For AOPC 2A, the HRA estimated a cancer risk at  $3.7 \times 10^{-5}$ , which is within the NCP generally acceptable range of one in one million to 10 in one million for risk management. The systemic toxicity was evaluated to be unlikely due to a hazard index of less than 1.0. Because

residential use of the site is unlikely, potential health effects from lead exposure to lead are not of concern. A specific ecological assessment for lead was performed to determine the site-specific target cleanup goal (TCG) for Site 4 AOPCs 1A and 2A. The lowest observed adverse effects level (LOAEL)-equivalent soil concentrations was compared to the full distribution of lead measured in soils at Site 4 AOPCs 1A and 2A. Testing revealed hot spot area concentrations. There are no documented impacts due to exposure to chemical in soil at Site 4.

#### Project Description:

The Department of the Navy (DON) is proposing the following activities as part of the Site 7 removal action:

- Site 7 Area 1: Limited repair of existing soil cover, sampling, and groundwater monitoring;
- Site 7 Area 2: Groundwater monitoring;
- Site 7 Areas 3, 4, and 6: Removal of surface debris; and
- Site 7 Area 5 and Site 4 AOPCs 1A and 2A: Excavation followed by offsite disposal and clean imported backfill;
- Institutional Controls/Application of Land Use Restrictions: The DON will implement Land Use Restrictions to ensure that Site 7 is not transferred to a non-federal agency.

These activities are more fully described below.

**Site 7 Areas 1:** The project involves the repair of the existing landfill soil cover. The minimum thickness of the soil cover will be at least two feet. Imported soil will be placed in locations where the cover is deficient to achieve the two-foot thickness. This additional thickness will prevent direct contact with buried waste and eliminate the potential migration of contamination through windblown dust and surface runoff. The top six inches of soil cover will consist of soil compost from IRP Site 5, which is currently stockpiled just north of IRP Site 7. This material is high in organic content and will be used as topsoil over the landfill cover in Area 1. If additional soil is needed, imported clean soil obtained from off-site borrow sources will be used to construct and repair the soil cover at Area 1. Soil material from IRP Site 5 and the off-site borrow sources will be tested in accordance with the sampling plan to confirm that the chemical content meets the requirements of clean material. Material from the existing cover will be removed, replaced, and compacted where needed. The soil cover will be at least 2 feet thick over all solid waste material and compacted to a minimum of 90 percent of the maximum dry density. The topsoil cover will be seeded with a mixture of native vegetation species. The seeds will be broadcast over the entire area of Area 1. The top 2 to 3 inches of the cover will be loosened using mechanical equipment (disk) prior to seeding. Mulching may be used on an as-needed basis. Additionally, a network of four existing groundwater-monitoring wells (W41, W42, W43, and W45) is proposed to be used to collect groundwater samples and monitor for trends in chemical concentrations in groundwater. Due to the shallow groundwater, tidal fluctuations, generally poor groundwater quality, and minimal ecological risk, studies have shown that minimizing infiltration to reduce the production of leachate and gas is not necessary.

**Site 7 Area 2:** In Area 2 the groundwater will be monitored for potential trends or offsite migration of chemicals from Area 2. The purpose of this groundwater-monitoring program is to serve as a sentinel well network to monitor the potential for groundwater contamination migration from Site 7. These wells are located strategically between buried wastes at Site 7 and the nearest potential aquatic receptors. Thus, these groundwater-monitoring wells will serve as an “early detection system.” This program will be consistent with the recommendations of the groundwater monitoring study performed

at Site 7 (Bechtel, 2002). Groundwater monitoring will be carried out by the DON subsequent to the remediation activities.

Site 7 Areas 3, 4, and 6: Based on previous geophysical surveys and site visits, only surface debris is known to exist in Areas 3, 4, and 6; therefore, selective removal of debris from the top few feet of soil at the site is proposed in these areas. Successful removal will be confirmed by nonintrusive geophysical techniques and confirmation sampling. If geophysical results indicate the presence of buried debris in Areas 3 and/or 4, these areas will be overexcavated to remove the debris. (Area 6 has no buried debris.) The excavated soil and debris will be processed through a rotary mechanical screen in order to segregate the debris from the soil. The soil will be stockpiled at the site. Soil samples will be collected from the screened and stockpiled soil for waste classification purposes and to determine if the material is suitable for use as backfill for the depressions and excavations in Areas 3 and 4. The surface depressions and voids created by removal of the debris will be backfilled with the screened soil [portions that meet the upper limit background value (ULBV) for metals] or clean imported soil and compacted to a minimum of 90 percent of the maximum dry density. The debris material will be hauled offsite and disposed at an approved landfill or will be recycled.

Site 7 Area 5: Based on long-term risks to aquatic receptors in the Perimeter Pond, the removal action for Area 5 will involve excavation of wastes and waste residuals (approximately 3,500 cubic yards [cy] in-place volume [SWDIV, 1999c]) below approximately 2 feet of overburden soil in the area to the extent that waste can no longer be confirmed by sampling and the existence of waste debris. The excavation volume, however, may vary significantly based on conditions encountered during excavation. It is anticipated that in place excavation volumes (including waste and contaminated soils) at Area 5 could range from as low as 3,500 cy to as high as 14,700 cy. Stockpiled soil will be tested and characterized to assure that it meets the upper limit background value for metals. Alternatively, clean imported soil obtained from an off-site borrow source will be used if additional soil is needed to complete the back filling and grading.

Site 4 AOPCs 1A and 2A: Based on long-term risks to ecological receptors, the removal action for Site 4 AOPCs 1A and 2A will involve excavation of lead-contaminated surface soil to the extent that elevated concentrations (above the TCG of 600 milligrams per kilogram [mg/kg] for lead coupled with an areawide arithmetic average TCG of less than 100 mg/kg for lead) are no longer detected. The excavation volume, however, may vary significantly based on lead concentrations detected during excavation. It is anticipated that excavation volumes could range from as low as 600 cy to as high as 2,800 cy. Initially, pre-excavation soil sampling will be performed. Samples will be collected via hand-augered borings. One boring will be augered in each 50-foot by 50-foot grid cell. At each boring location, samples will be collected from depths of 0.5 feet and 1.5 feet bgs. As there are 216 grid cells, this will yield a total of 432 samples (plus QC samples). The samples will be submitted to a DON approved analytical laboratory and analyzed for lead concentration. If any of the pre-excavation sample results indicate a lead concentration exceeding 600 mg/kg, the corresponding 50-foot by 50-foot grid cell will be excavated to the sample depth, plus 6 inches. For example, if a sample collected from a depth of 1.5 feet shows a lead concentration exceeding 600 mg/kg, the entire grid cell where the sample was collected will be excavated to a depth of 2 feet bgs. A site-specific TCG of 600 mg/kg for lead is proposed.

After excavation, the grid cell will be re-sampled (confirmation sampling) to ensure that the lead-contaminated soil has been removed. Confirmation sampling will consist of collecting one sample from the floor of the excavation and one sample from each of the four sidewalls of the excavation. If the confirmation sample collected from the floor of the excavation indicates a lead concentration

exceeding 600 mg/kg, the entire 50-foot by 50-foot floor of the excavation will be excavated an additional 6 inches and re-sampled. If any of the confirmation samples collected from the sidewalls of the excavation indicates a lead concentration exceeding 600 mg/kg, the entire 50-foot length of the corresponding sidewall will be excavated laterally an additional 5 feet and re-sampled. This process will continue in each grid cell until all confirmation sample results indicate a lead concentration below 600 mg/kg. This process will be performed in each of the 216 grid cells that comprise IRP Site 4 AOPCs 1A and 2A. The wastes then will be transported offsite and disposed in an approved landfill. Imported clean, fine-grained soils will be used to backfill the excavation, and the reconstructed shoreline surface then will be armored with riprap and geotextile for erosion protection.

**Institutional Controls:** Institutional controls in the form of land use restrictions are necessary to prevent unacceptable risk to human health from potential contact with residual contamination, prevent groundwater use that may be affected by soil contamination, protect monitoring equipment, and preserve access to the sites and associated monitoring equipment for the DON and FFSRA signatories. In addition, land use restrictions are necessary to protect the integrity of the landfill remedy and to prevent land transfer for inappropriate uses of the property.

The project is anticipated to commence January 2004 and end March 2004.

#### Findings of Significant Effect on Environment:

The Department of Toxic Substances Control (DTSC) has prepared a Special Initial Study pursuant to the requirements of the California Environmental Quality Act (CEQA, Section 21000 et seq., California Public Resources Code) and implementing Guideline (Section 15000 et seq., Title 14, California Code of Regulations). Based upon this analysis, DTSC has determined that the proposed project will not have a significant effect upon the environment.

#### Mitigation Measures:

DTSC has determined that the project does not require any mitigation measures beyond those incorporated as part of the project description.



DTSC Branch Chief Signature

1/9/04

Date

John E. Scandura

DTSC Branch Chief Name

Chief, Southern California Branch,  
OMF

DTSC Branch Chief Title

( 714 ) 484-5440

Phone #





BOLSA CHICA ROAD

WESTMINSTER BLVD

CASE ROAD

SEAL BEACH BLVD

NATIONAL  
WILDLIFE REFUGE

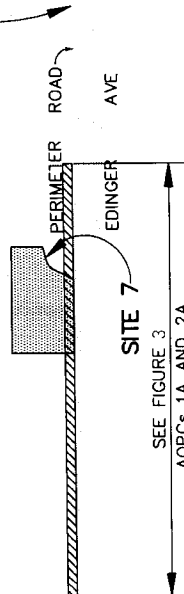
ANALHEIM BAY  
ENTRANCE CHANNEL

PACIFIC OCEAN

LEGEND

- NAVWPSTA SEAL BEACH BOUNDARY
- NATIONAL WILDLIFE REFUGE BOUNDARY
- APPROXIMATE SITE AREA FOR SITE 7, STATION LANDFILL
- APPROXIMATE SITE AREA FOR SITE 4 AREAS OF POTENTIAL CONCERN (AOPCs) 1A and 2A

ORANGE COUNTY FLOOD CONTROL (BOLSA CHICA) CHANNEL



**Figure 1**  
**Site Location**  
**Site 7 Station Landfill**  
**NAVWPSTA Seal Beach**

**CH2MHILL**

National Wildlife  
Refuge

National Wildlife  
Refuge  
Boundary

Area 3

Area 4

Area 1

Area 5

Area 6

Perimeter  
Pond

East Pond

Ditch

Old Dirt Road (At Grade)

Existing Road (Above Surrounding Grade)

Drainage Ditch

Area 2

Site 4 AOPCs 1A and 2A

Perimeter Road

Fence

Orange County (Bolsa Chica) Flood Control Channel

For estimated length of Site 4 AOPCs 1A and 2A, see Figure 2

Legend:

Railroad Tracks

Estimated Site 7 Boundary

Estimated Areas of Known Surface Debris or Trenches

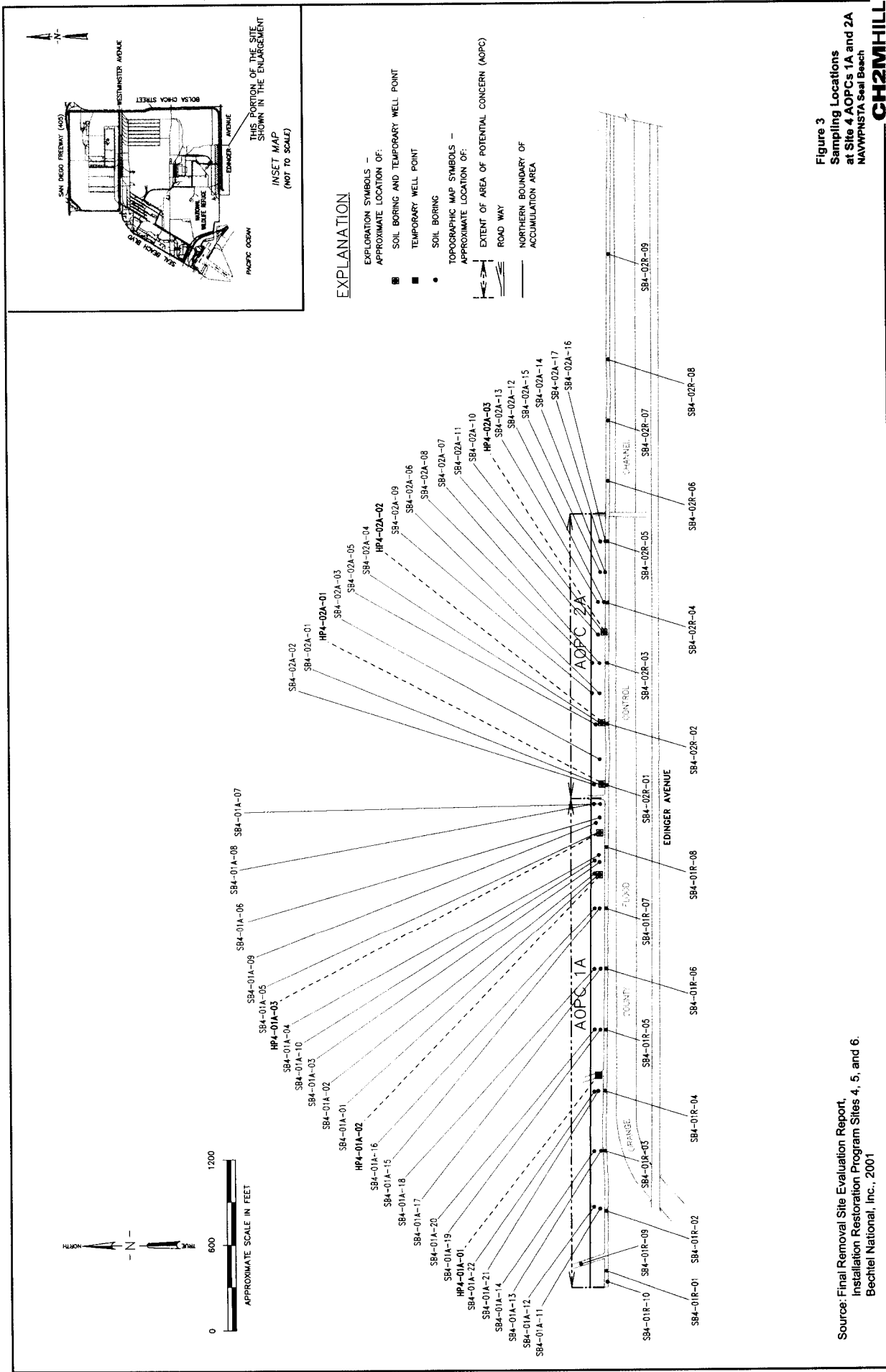
Surface Water Body

Estimated Area of Site 4 AOPCs 1A and 2A



**Figure 2**  
**Removal Action**  
**Site 7 Station Landfill**  
**NAWPNSTA Seal Beach**

**CH2MHILL**



**Figure 3**  
Sampling Locations  
at Site 4 AOPCs 1A and 2A  
NAVFACSTA Seal Beach  
**CH2MHILL**

Source: Final Removal Site Evaluation Report,  
Installation Restoration Program Sites 4, 5, and 6.  
Bechtel National, Inc., 2001

